

**VIDEO OBJECT TRACKING**  
**BY ESTIMATING AND SUBTRACTING BACKGROUND**

**ABSTRACT OF THE DISCLOSURE**

5 An object is tracked among a plurality of image frames. In an initial frame an operator selects an object. The object is distinguished from the remaining background portion of the image to yield a background and a foreground. A model of the background is used and updated in subsequent frames. A model of the foreground is used and updated in the subsequent frames. Pixels in subsequent frames are classified as belonging to the background or the foreground. In subsequent frames, decisions are made, including: which pixels do not belong to the background; which pixels in the foreground are to be updated; which pixels in the background were observed incorrectly in the current frame; and which background pixels are being observed for the first time. In addition, mask filtering is performed to correct errors, eliminate small islands and maintain spatial and temporal coherency of a foreground mask.

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